

... new work in favour
of Professor Powell, & the
Sciences, by a Philomath" (Mr
Rev'd R. D. Walker, Fellow of
Magd: Coll: Oxford -) were
SHORT CRITICISM
intended as an answer to that
pamphlet.

OF
A L E C T U R E

(P)

PUBLISHED BY THE

SAVILIAN PROFESSOR OF GEOMETRY.

BY A MASTER OF ARTS.

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THE Lectures which are delivered from the Chair of a Professor in the University do not appear to fall properly under the criticism of unauthorized and anonymous writers ; nor would the Author of this small Pamphlet have ventured to remark upon any such composition, if it had appeared to him to keep in any degree within its own limits. Still less would a Lecture upon a Mathematical subject have excited the notice of one who freely acknowledges himself to have no acquaintance with that branch of knowledge. But when a Course of Public Lectures upon a scientific subject, is introduced by a Discourse reflecting upon the University of Oxford, and its system of education in every point ; and that in language the most unmeasured : and when the Lecturer, in publishing this Discourse, openly avows his ‘ hope’ that ‘ these pages may fall into the hands of some readers out of the University,’ the case becomes widely different. The dangers which may ensue from the propagation of error become aggravated by the station and rank of the person from whom the error pro-

ceeds : and the humblest individual may venture to point out what appear to him mistaken views, or unauthorized conclusions.

At this time particularly, when the University has been so recently assailed in no gentle manner by one of her own sons, and when the danger to which all the old institutions of the country are exposed is but too manifest, it seems to be doubly needful to endeavour to correct such unfavourable impressions towards the University, as will naturally be felt by those who read the Lecture of the Savilian Professor of Geometry. As long as such attacks were confined to the Edinburgh Review, they might safely be neglected; for the talent of that publication is happily compensated by its reputation for honesty. But who will not think that Oxford is guilty of all the charges of ‘ lamentable blindness,’ ‘ perversion and delusion’ of mind, ‘ unhappy prejudices and most lamentable infatuation,’ so freely thrown out by Mr. Powell, when they find the title-page adorned with the name of a Professor? One thing therefore at least shall be done by the present publication. It shall not be assumed that the Professor’s arguments are good, because they are neglected ; nor his conclusions ‘ unanswerable,’ because they are ‘ unanswered.’

One thing it may not be amiss to remark at the outset. Whatever may be the soundness of argument, or the luminousness of view, contained in the Lecture, the language in which it is conveyed is most slovenly and unclassical. There is not one page, there is scarcely one sentence, which is not deformed by errors of style, which would be discreditable to the merest tyro in composition. It is ungrateful to linger on such a point as this: and therefore let the following specimen, extracted from pp. 21 and 22 of the Lecture, suffice for an instance of what I mean. ‘Circumstances already referred to tend to the alternative of doing the utmost or nothing: and the Examination System, instead of counteracting, only more powerfully, enforces this mischievous tendency; and the broad distinction, susceptible of no modifying circumstances, between the several Classes, and between honours and a mere pass, and for passing the sole alternative of Logic, or the four books of Euclid; these CIRCUMSTANCES produce the direct and obvious consequence, that the Candidate esteems no Class worth attaining but the first: if he does not feel nearly secure of his place there, he infinitely prefers passing without notice, to a place in any of the lower Classes: and to secure his passing will do nothing beyond the

mere quantity of Euclid which is absolutely exacted.'

Passages like this occur in every part of the Lecture, and force us to observe the extreme deficiency in an accomplishment so easy of acquisition, so universal, and so much encouraged in Oxford, of one who is among the loudest in decrying our System of Education.

There is one other preliminary matter which, I trust, I may observe upon without offence. The Professor well knows that he is in a minority in Oxford on the points in question. He has often tried it, and found it so. The knowledge of this fact accounts for the complaints made in this Pamphlet: and yet he has no better language to give to those who differ from him in opinion than what I have quoted, 'unhappy prejudices, and most lamentable infatuation.' I know that this is the sort of language which we are to expect. In Politics and Theology it is as much introduced as in minor matters of University regulation. The philosophers of the present day arrogate to themselves a singular and hitherto undiscovered wisdom: and whether in the pulpit of St. Mary's, or in the Professorial Chair, they lay down their positions with a coolness and confidence which would be perfectly amusing, if it were not for the importance of the interests

involved, and the danger (greater now than ever) of the contagion of error. In these days, when every body claims to have opinions and learning and knowledge for himself, men are more easily led by mere assertion, than in the most arbitrary ages of authority and prescription.

As far as I can understand the precise purpose of the Lecture before me, (a purpose not very plainly indicated in the second paragraph of the first page,) it is this. The Professor begins (p. 1—11.) by declaring it to be his belief, that the study of Mathematical and Physical Science has diminished in Oxford; while he allows that nothing is proved by the mere names of such men as Horsley, (who by the bye was *educated* at Cambridge,) he contends, that judging from the language of the Old Statutes, and the published lists of persons who have succeeded in gaining Mathematical honours, (which lists, as he perspicuously observes, ‘ *constitute the only ground on which the University recognizes the pretensions of the Candidates,*’) we may safely conclude, that the study of these subjects is much less general than it was even a few years ago, and than the framers of the Old Statutes intended that it should be.

The second division of the Lecture seems intended to prove, that the alteration thus shewn to have taken place is mischievous, (p. 11—14.)

or, to use the Professor's expressive phrase, '*that the facts are evils.*'

The remainder of the Lecture is occupied with the consideration of the causes of these evils, and the remedies for them. But as it is never worth while to repeat (possibly in less convincing form) what has been well said before, the Professor refers us under this head to certain printed reasons for altering the Examination Statute, of which (having had nothing to do with the composition of them) he kindly says, that they are *clear, forcible, unanswered, and unanswerable.*

The whole concludes with an emphatic warning to the University to set about learning Mathematics and attending the Savilian Lectures with all speed, if we do not wish to be pushed from our stools by the wise and mathematical unionists of Birmingham and Bristol.

I am not disposed to contest the main positions of the first of these three divisions.

Let it be granted, that the Old Statutes contemplated a more various and general preparation for the Bachelor's Degree, than the New Statutes require. But let it be considered at the same time, that the range of human knowledge in many respects (vide p. 5.) is so much enlarged since the time of these Old Statutes, as to render it inevitable that many branches of study should

be wholly neglected in any plan of general education.

Let it be also allowed, that the proportion borne by persons gaining Mathematical honours to those who pass the common Examination is diminished of late years. But instead of accounting for this fact on the singular ground adopted by the Professor, let it be remembered, '*that the question may possibly be the other way,*' and that the preposterous want of proportion between the difficulty of the printed questions, (vide p. 8.) and the small number of Mathematical Students, may be in great measure the cause of the diminution.

In pages 8, 9, and 10, the Professor allows, (what is well known to all members of the University,) that elementary instruction on these subjects is afforded in the Colleges to many who do not subsequently offer themselves for Mathematical honours ; and from this fact he draws two conclusions : first, (p. 9.) that therefore our system is one which fails to bring out latent talent : and, secondly, that those who do offer themselves for honours, study the subject only to that precise amount which is to secure them from falling into the second and third Classes. Of which two conclusions I have only this to say : that the first is as independent of the premises

as can be conceived, and therefore is utterly without the reach of answer; and that the second, which (though it does not follow) is yet in a great measure true, is true of all systems of honours whatever, to that precise extent to which those systems of honours are rendered (as the Professor wishes ours to be) exact and perfect. This point, however, I shall have occasion to refer to again, and therefore I shall dismiss it for the present.

With these admissions respecting the main statements of the first division of the Lecture, let it be observed, that the Professor's conclusion is of no more value than his assumption, for in fact it is exactly the same. 'The majority THEN approach these subjects with awe, do only just so much and in such a way as fulfils a compulsory requisition, and as soon as they can, eagerly discard the very recollection of it: while the few who are led on by genius or ambition, pursue the study extensively, but too often in such a manner as is productive of little real advantage or systematic improvement.'

Whence this last observation is derived I cannot tell; for if the system of giving honours does not succeed even with that small number of persons for whose particular benefit (according to Mr. Powell) it is instituted, there can be

little reason for expecting it to succeed better, if, according to his desire, it should be extended to others.

The second division of the Lecture touches upon a point of fundamental consequence to the whole enquiry : the question, whether the alterations supposed to have taken place in the system of education in Oxford are mischievous or no. The Professor does not indeed enter upon the argument. He only speaks of opinions as maintained and professed, which appear to him hardly reconcileable or intelligible: and declines to waste time in the refutation of such idle theories as those of his opponents. At the risk, however, of being unintelligible, and in defiance of the danger of being unworthy of the time which it would take to refute my notions, I will venture to express my dissent.

The object of the University is to complete, in the best manner in which she can, the education of her Undergraduate Members, who coming to her after leaving School, remain during three years under her charge. The practical question then is this : Is the sort of instruction here delivered, such as seems the best adapted to this general purpose, to the greater number of persons sent here for education ? If it appear that it is so, then it matters not whether this or

that subject is omitted, whether the design of the Old Statutes is exactly adhered to: if the object properly proposed appear to be properly attained, we have no need to listen to the restless importunity of those, who would have us seek for imaginary good at the expence of the certain mischief of change.

Now it appears to me, that whatever be the selected subjects of study, they must needs be somewhat confined. The purpose being education of mind, and not mere accumulation of facts, and the time being too short to obtain a wide and extensive knowledge of many branches of information, it is clearly advisable that some particular subjects should be fully studied, rather than that the attention should be distracted, and the habits of thought rendered desultory by too wide a range. If, for example, the letter of the Old Statutes, as quoted by Mr. Powell in his Appendix, should be exactly followed, no person I think can doubt, that the purposes of mental education would be much frustrated. I do not now insist upon the different duration of an Academical residence in those times and in these: but if the '*principle of a comprehensive course of the liberal Sciences as the appropriate employment of Scholars in Arts*' were to be admitted, I cannot conceive that any thing would be gained

but habits of loose and desultory reading, instead of those of close, accurate, and continuous study. Even now, with our range of subjects so illiberally limited, the tendency is too visibly towards vagueness, and compendious, superficial reading. The present mode of Examination discourages Students from obtaining accurate knowledge of some subjects, by rewarding too highly a vague acquaintance with many: and the time which used to be devoted to one or two authors, or one or two subjects, is now given up, with more prospect of reward, to the pages of Encyclopædias, or the unsatisfactory studies of Synopses and Analyses.

But though it may be clear that we need to select some particular subjects for the common studies of the place, it certainly does not yet appear that those which we have selected are the best ones; nor that natural Science might not be beneficially substituted for them. We then need to consider what the general studies of this place are: and I apprehend that Mr. Powell will not object to take the Public Examinations as a test of this point, since he himself says, that '*it needs no argument to prove, that these will always be the first moving principle of the whole machinery.*' (p. 20.) Looking then to the Public Examinations, I have no hesitation in saying,

that the first and main characteristic of them is an attention to *Moral Philosophy*. Besides this principal subject, History, Composition, acquaintance with the Classical languages, and through them with the principles of language in general, Logic, Rhetoric, and above all, a very considerable knowledge of Divinity, are required of every person who aspires to what are called *Classical* honours. By the present system, all Candidates for honours are subjected to the same Examination, and therefore between the separate Classes no distinction can be drawn except in point of degree. Besides, those of the pass-men who appear to deserve honour, are immediately brought beneath this same Examination, and a connexion is thus established between the pass-examination and that for honours. Further, by the internal regulations of such Colleges as I am acquainted with, the great majority, even of those who do not become Candidates for honours, are compelled to study all these subjects privately: they attend lectures in them, and are examined like the others both in their Tutor's room, and in the Collections at the end of Term. Those few who never read any other book than those in which they are examined in the Schools, are exempted solely on account of their inability to do more; and I

cannot conceive that the evils of their case would be remedied by increasing the amount of knowledge to be required from them. Considering therefore the whole system of ordinary Oxford instruction, as it is carried on privately and publicly, in the Tutor's room, the Collections, and the Public Examinations, I have no hesitation in asserting, that it is all of one character. From the most brilliant first-class man of his year, down to the dullest and most doubtful of those who merely obtain their Testamur, the differences are only those of degree. They have met in the same Lectures, they have to a great extent read the same books, and (with the necessary allowances made for different health and application) they find their places at last according to their different talents and information.

The question then is, shall we demand a certain quantity of Scientific knowledge in addition to all this? or shall we substitute a Scientific course of study for it? I, for my part, am ready with my answer. I will do neither. I will not add to the subjects, which are at present held indispensable, because I think them only too extensive already: I will not substitute others for them, because I think them the best that can possibly be selected for the education of the mass of Undergraduates.

I will not enter into the consideration of the comparative merits of these subjects as general studies, because Professor Powell has not done so: but shall content myself with saying, that of all the subjects which I can think of as adapted for the education of a large number of young men, I know of none so improving to the mind, or so directly useful in so many ways, as that of Human Philosophy, when considered as comprising the study of human intellect, character, and duty: the first in the Sciences of Logic, and Metaphysics; the second in History, Poetry, and Oratory; and the third, in Ethics.

I proceed to examine the third division of the Lecture: which contains a statement of the causes which the Professor assigns for these evils, and the remedies which he proposes.

The first cause which he mentions is, '*the want of preparation in elementary knowledge previous to admission into the University:*' upon which I have no remark to make, not being disposed to enter into controversy respecting our Public Schools.

Nor shall I enter into any consideration of the second cause, '*too close and undeviating an adherence in the outset to the letter of Euclid's Elements;*' because I am not competent to offer

an opinion upon the subject myself, and the Professor is.

‘*But it will be almost superfluous,*’ continues the Professor, ‘*to say, (that) the most efficacious and deeply seated causes of the evils already described will be found in the system of Public Examinations.*’ He then refers to the *clear, forcible, unanswered, and unanswerable* (but equally ill written) ‘*Reasons*’ of the Public Examiners; and thus sums up. ‘*The broad interval between the several Classes: the discredit attaching to the inferior Classes: the total absence of all motives to do a little: all arising obviously out of the alphabetical arrangement, and the non-publication of the names of the pass-men, or rather the existence of any distinction between passing. and honours.*

‘*These are the main and original sources of the whole evil, which can never be too often or too forcibly pressed upon the attention of the University.*’

In considering these objections to our system of honours, I must, I fear, go back to some distance, in order to ascertain the object for which we give honours at all. I will, however, be as brief as possible.

The wish and desire of the University is, that the time spent in Oxford by Scholars in Arts,

should be spent diligently and laboriously in the pursuit of certain studies. The University has a strong opinion also respecting the nature of the studies which she would desire to occupy their attention. Finding, however, that such mere recommendation of a particular line of study, together with the simple love of learning and knowledge, do not form a sufficient inducement to general and well-directed labour, she consents to propose a further and *unnatural* stimulus, by offering honours to such as shall distinguish themselves.

I am well aware, that the calling of honours by the name of an *unnatural* stimulus will excite offence in those who, holding the opinions opposite to mine, think that the first principle of the University is, *to encourage an honourable emulation*. I must however repeat, that every stimulus which does not arise of itself, but is created by *encouragement*, (as it is called,) is unnatural. And I know full well, that exertions which for a time are so stimulated, and which are then left (the real need of exertion remaining the same) to be continued under the influence of principles which were found insufficient to produce them, will be deadened and discouraged by the re-action to a greater extent, than if such stimulus had never been applied. I do not, how-

ever, wish to use this principle to its full extent in this instance, because I find a compensation to the evils of a moderate scheme of honours, in the habit of study which is thus encouraged, and which may be sufficient to cause the continuance of exertion, when the influence of a moderate stimulus is over. I boldly appeal, however, to every body whom the present system of University honours has incited to spend three years in close and diligent study, to say, whether his own experience does not bear out the assertion, that such a re-action takes place now ; and also, whether he does not think that it would be increased in exact proportion to the increase of the stimulus.

The University then, being supposed to have consented to the use of honours as an inducement to labour, has next to consider how these honours shall be given. At this point, the alternative presents itself, whether these honours shall be strictly, rigidly, and exactly given, in the precise order of merit : or whether there shall be only three or four distinctions of merit made, and within these great divisions, the individuals treated as equal. To each of these plans there are distinct objections, and, whichever is chosen, some evils will necessarily ensue.

Against the first scheme it may be argued :

1. That such a high-pressure system encourages^a the best men, (who least need it,) at the expence of the inferior men, (who need it most.)
2. That it encourages a feeling of *personal* emulation, and thereby aggravates to a great extent an evil, to which any system of honours must be in some degree liable.
3. That in the subjects which the University has chosen for the study of the majority, such a precise order is impossible: inasmuch as it would be found absolutely idle to attempt to measure (amid such a range of subjects) one merit against another with such exactness as would be requisite for such an arrangement.
4. That the attempt to make an exact ad-measurement of personal merits (it being impossible to make it accurately) would give rise to more unfair inequalities than would ensue if such a scheme had never been attempted. For at different times different boards of Examiners do not set the same value on the same subjects. And some differences between the Candidates must inevitably remain after the best scrutiny :

^a I am aware how widely Professor Powell will differ from me on this point. As it is however sufficiently considered presently, it is needless to repeat the arguments here.

the neglect of which differences is more unjust when the profession of exactness is made.

Against the second plan it is urged :

That all these evils exist in it also, though in a minor degree : while it has a fresh evil (if it be a fresh one) in the recognition of the principle of putting into one Class persons of confessedly unequal merit.

Of these two schemes, then, the University has chosen the second : wisely (as it appears to me) thinking, that (as to the first argument) these evils are incident to systems of honours *as such*, and therefore to have them moderated, is the utmost that she can desire : and as to the second argument, thinking that if she proposes four Classes, and people choose to risk the trial, they can have no occasion to complain. It is well known, that in any system of Classes, lines must be drawn somewhere. It is open to the Examiners to draw these lines where they please.

But the Professor urges, and we often hear it urged, that the lower honours are not sought for, and that this evil (for we are all well agreed that it is a great evil) arises from the Alphabetical arrangement. I have often tried to understand the connexion of cause and effect between these two things, and I own that the more I consider it, the more I am convinced, that

the lower honours would be less sought for, exactly as the honours followed the order of merit more closely. So far from agreeing with the Professor then, I differ from him entirely. It seems to me clear, that if a prize is offered to fifty people which forty *may* possibly succeed in gaining, the excitement is extended to forty : if another is offered to the same fifty which only ten *can* gain, the excitement is confined to those ten, who have a chance of gaining it. In the same manner, the more the honours are *individualized*, (if I may use the phrase,) the more the triumph of the successful Candidates is heightened : and the disgrace (if I may so term it) of the lower honours aggravated. Thus any scheme of increasing the number of Classes, or introducing the order of merit, or any approximation to it, seems to me to be likely to do two things : to increase the difficulty, and therefore the honour, of the first men ; and to exhibit in a clearer light the defeat of the last.

Why then are the lower honours so much despised even at present ? Simply, because they are lower honours. The principle (sometimes thought a fine one) which dictated the sentiment, *Aut Cæsar aut nullus*, is very current among us, and he who cannot be in the First Class, would rather be in no Class at all. But is this or can

this be caused by the interval between the Classes, or the alphabetical arrangement within them ? I think it will need all the clear-sightedness of the Savilian Professor to discover it to be so, and all his style to make it clear to others. To me it appears, that lower honours are *as such* distasteful to ill-regulated minds, and I should have no hope of relieving, but rather great fear of aggravating, the mischief, by taking any steps, which, by rendering the first honours higher, should render the last honours lower.

There is, however, one point which I must allow. If every name were published, from the highest to the lowest; and those places only were 'honours' in the arrangement, which people chose to think such ; I cannot deny, that a stimulus would be offered to avoid the bottom of the list, as well as that to get to the top of it. But long may the University be saved from such thorough-going cast-iron legislation ! I do not object to the mere printing of the passmen's names. But I do strongly feel the injustice that would be done to those deserving men, who by accidental ill health, or other such causes, are compelled to take up the minimum of books ; and I feel also, that by this multiplication of unnatural excitements—this slave-driving of our Undergraduates-- the tendencies to re-action

which I before spoke of, and all the other mischievous tendencies inherent in a system of honours, would be very much enhanced.

It must not be supposed, that the University system of education is herein represented as perfect, and incapable of improvement. There are many points in which it has improved, is improving, and I trust will still improve much further. But I do not think, that those Undergraduates, who are, from their ability and acquirements, within the reach of a First Class, need more excitement than they have got already: and therefore I do not think that the Classes need to be further subdivided. Many people take it for granted, that excitement, and honours, and classes, and prizes, and medals, are in themselves good things; and that the University will flourish more, in proportion as we have more of them. For my part, I cannot but think them intrinsically mischievous: and only to be tolerated to that extent in which they shall answer their first purpose, namely, to diffuse *widely* a *moderate* stimulus. For I feel well assured, that such stimulus will be widely felt in proportion as it is moderate, and only increase in intensity as the circle of its influence diminishes.

The Mathematical honours, as they are at

present given, appear to me to illustrate my positions in every respect. If we adopt Mr. Powell's calculation we find, that the number of Mathematical students who have offered themselves for honours has decreased since the year 1820. Why has this been so? Has the arrangement become alphabetical since 1820, or has the number of Classes been diminished? The causes which Mr. Powell assigns have no place here. Why then are there not so many now as there were? I know that in this interval the Mathematical Examiners have seen fit to publish their Papers of examination: and I know that, whether with the desire of cutting a figure in the Mathematical world, or with whatever desire, those questions have been made remarkably difficult: and I know that the effect has been, that the study of Mathematics has been advanced among those who have a bent for the subject. (vide p. 8.) Is it not at least conceivable, that in proportion as the Examiners have increased the requirements of the First Class, they may have discouraged from the attempt some persons who might otherwise have made it? Should there not be some proportion kept between the difficulty of the questions, and the number of the answerers, when the object is to encourage the study extensively?

In the course of the Lecture and the Notes there are many other observations incidentally made. Among these, it is quite encouraging to find, from a writer of Mr. Powell's school, the following sentiment, '*that to the spirit and principles of the old Statutes we are bound carefully to recur, and diligently to adhere.*' How readily would both spirit and principles of *old* Statutes (or *new* ones) be flung to the winds, if they were supposed to make the other way !

Again, in the alterations recently made to further the study of Mathematics in Oxford, Mr. Powell is highly displeased that the subject should be encouraged as a separate one from the regular studies of the place. I have already spoken of the necessity of limiting and confining the regular studies: and will only now add, that the regular studies being necessarily limited, no mode seems so reasonable of giving collateral and subordinate encouragement to other studies, as that which has been already adopted with respect to Mathematics, and is adopting with respect to the Hebrew language.

I have now completed my purpose: which has simply been to state in opposition to Mr. Powell the views which, as an individual, I entertain on the subject which he has brought into question. Of those in whom the decision of such a question

will rest, few probably will exactly agree with either of us. But I hope and trust, that the agreement will practically be so far with me, as to prevent the introduction of modes of giving honour, which to me appear mischievous and impracticable.

I cannot, however, finish these few pages without one observation. Few persons can have failed to remark the moment which Mr. Powell has selected for this publication. Though he has entertained these opinions long, and has made sundry endeavours to carry them into effect, (vide p. 40, 41.) yet until this occasion, when the Scientific Society of the whole country is meeting in Oxford, he has refrained from a detailed attack. I need not say, that in a question of education, and when the particular doubt is whether a certain branch of knowledge shall be generally introduced, few people would constitute as judges the actual Professors of that particular branch of knowledge. But the delicacy and the taste of laying bare what in his eyes are the disgraces of the University to the assembled meeting of his Scientific friends, need no comment. I know, that in the rage for improvement, the lesser matters of feeling and delicacy are universally and professedly put aside. We, however, are otherwise educated. As long as the Political

Unions may allow us to exist, we shall otherwise educate those entrusted to us. And though the Mathematical and Physical Sciences should rise no higher among us than they have yet risen, I trust that we shall ever be found able to educate persons who may fill their stations in society with credit and advantage; who, though they have not traversed within three years the whole circle of liberal knowledge, may at least attain such humble objects as to be modest in their assertions, to think clearly, and to write good English.

THE END.